

CLAIMS

1. An interference cancellation method for a mobile station in a radio cell of a CDMA cellular system, including the steps of

5 maintaining a list of intracell interferers to the mobile station;

detecting intercell interferers to the mobile station;

adding each detected intercell interferer that fulfils a predetermined selection criterion to said list; and

10 performing, based on information about the interferers in said list, interference cancellation for all interferers in said list.

2. The method of claim 1, including the step of using handover related information available in the mobile station for detecting intercell interferers.

15 3. The method of claim 1 or 2, including the steps of

measuring received interfering signal power from intercell interferers using the same frequency band as the mobile station;

adding to said list only intercell interferers having a measured received interfering signal power that exceeds a predetermined power level.

20 4. The method of claim 1 or 2, including the steps of

determining the cross-correlation between a desired signal and signals from intercell interferers;

adding to said list only intercell interferers having a determined cross-correlation that exceeds a predetermined cross-correlation level.

25 5. The method of claim 1 or 2, including the following steps for each intercell interferer to be included in said list:

determining a channel estimate;

determining a channelization code;

determining a scrambling code;

forwarding the determined channel estimate, channelization code and scrambling code to a joint detection algorithm used by all interferers in said list.

5 6. An interference cancellation apparatus for a mobile station in a radio cell of a CDMA cellular system, including

means for maintaining a list of intracell interferers to the mobile station;

means for detecting intercell interferers to the mobile station;

10 means for adding each detected intercell interferer that fulfils a predetermined selection criterion to said list; and

means for performing, based on information about the interferers in said list, interference cancellation for all interferers in said list.

15 7. The apparatus of claim 6, including means for using handover related information available in the mobile station for detecting intercell interferers.

8. The apparatus of claim 6 or 7, including

means for received interfering signal power from intercell interferers using the same frequency band as the mobile station;

20 means for adding to said list only intercell interferers having a measured received interfering signal power that exceeds a predetermined power level.

9. The apparatus of claim 6 or 7, including the steps of

25 means for determining the cross-correlation between a desired signal and signals from intercell interferers;

means for adding to said list only intercell interferers having a determined cross-correlation that exceeds a predetermined cross-correlation level.

30 10. The apparatus of claim 6 or 7, including the following steps for each intercell interferer to be included in said list:

determining a channel estimate;

determining a channelization code;

determining a scrambling code;
forwarding the determined channel estimate, channelization code and scrambling code to a joint detection algorithm used by all interferers in said list.

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11. A mobile station for a CDMA cellular system, including
means for maintaining a list of intracell interferers to the mobile station;
means for detecting intercell interferers to the mobile station;
means for adding each detected intercell interferer that fulfils a pre-determined selection criterion to said list; and
means for performing, based on information about the interferers in said list, interference cancellation for all interferers in said list.

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12. The mobile station of claim 11, including means for using handover related information available in the mobile station for detecting intercell interferers.

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13. The mobile station of claim 10 or 11, including
means for measuring received interfering signal power from intercell interferers using the same frequency band as the mobile station;
means for adding to said list only intercell interferers having a measured received interfering signal power that exceeds a predetermined power level.

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14. The mobile station of claim 10 or 11, including the steps of
means for determining the cross-correlation between a desired signal and signals from intercell interferers;
means for adding to said list only intercell interferers having a determined cross-correlation that exceeds a predetermined cross-correlation level.

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15. The mobile station of claim 10 or 11, including the following steps for each intercell interferer to be included in said list:
determining a channel estimate;

determining a channelization code;

determining a scrambling code;

forwarding the determined channel estimate, channelization code and scrambling code to a joint detection algorithm used by all interferers in said list.